

THE SCIENCE OF FARMING

Answers by the Veterinarian

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Cow Pox

MY COWS have awful sore teats and bags. There are spots, or little boils, on them, and these burst and leave raw sores, which bleed at milking time. The cows kick when we go to milk. This trouble has been in my barn for some months, and every heifer or cow gets it and it stays right along. We cannot go on running a dairy if this thing lasts much longer. We have used several kinds of grease, salve and liniments, but they only make the cow kick worse and don't heal the sore places. What would you advise doing to these cows in shape again?—G. McN., Wisconsin.

Reply—The cows have "cowpox" and the disease is contagious and is spread by the milkers' hands. It is comparatively easy to cure and get rid of. Cleanse, disinfect and whitewash the stable. Place the affected cows by themselves and milk them last, or have them milked by one who does not touch the other cows. Before and after milking each cow wash the hands in a solution of half an ounce of hyposulphite of soda to the quart of water and use a similar solution with which to wash the udder twice a day. Paint the sores with glycerite of tannin as required. If any of them prove tardy in healing paint with tincture of iodine once or twice and then use the glycerite as a paint. Balsam of Peru applied after soaking the sores with a saturated solution of boric acid also is an admirable remedy.

Urinary Trouble

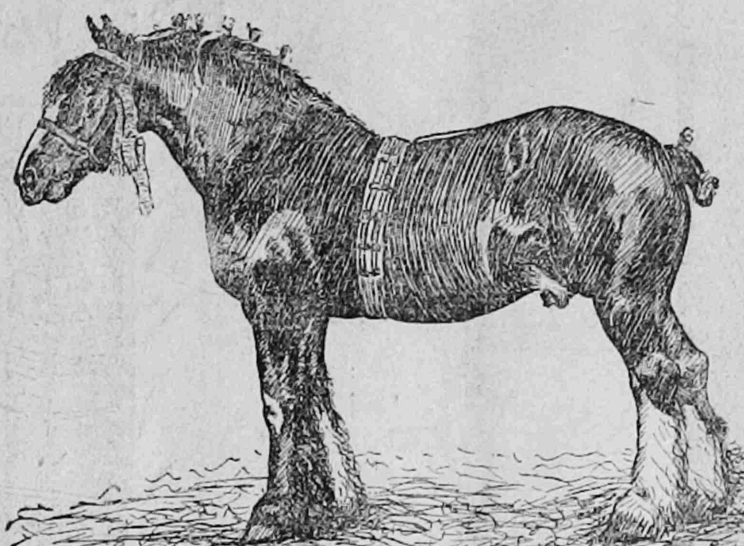
I HAVE a mare that has been affected with what the local veterinary calls incontinence of urine. She became affected about one year ago, I think from feeding alfalfa hay of very poor quality. She urinates frequently and in small quantities. When heated from working it seems to aggravate the trouble. Is there danger from working her and getting her in a heated condition? If so, would there be danger of abortion if the mare was heavy in foal?—Lucian S. Pratt, Illinois.

Reply—Moldy alfalfa hay is quite often a cause of irritation of the kidneys and the symptoms would be such as you describe. It is found in the hay that causes the irritation. Usually the urine is passed too often and in excessive quantities and the aliment is called "diabetic insipidus." Working the mare will be good for her when pregnant, but she should not be overworked. The moldy alfalfa hay might cause abortion and would be more apt to do so than hard work. If the mare is not in foal give half-ounce doses of sirup of iodine of iron two or three times daily in half a pint of flaxseed oil. As found necessary to check the urination at times when it is profuse. To stop the irritation give half an ounce of fluid extract of saw palmetto and twenty drops of fluid extract of belladonna leaves two or three times daily. Prefer soft to hard drinking water.

Corn is not made out of nothing. The only place where corn can get the mineral matter of which it is composed is in the soil. Then is it not only natural there should be less mineral plant food in the soil after each crop is removed and that what is taken out must be replaced?

How to Make Roughages Palatable

By Robert Miller



The Power Behind the Farm

One of the great cares of a farmer is how to make use of the vast amount of roughage produced on the farm. Mr. Miller believes, from actual experience, that "good straw is easily digested and a more healthful thing to feed your horses and cattle than hay." This applies to winter feeding, when the work horses are at rest. Try feeding straw and save the hay until work season in spring.

sibly be made by the farmers of our country at this time.

These same remarks apply to the cattle to a greater extent. The question of feeding horses is a different one. You must have them so that they can work. Your cattle do not get a great deal of exercise, and if you can make straw and the rougher classes of hay more palatable so that they will fill themselves and lie down comfortably each and every night, it should be a great source of satisfaction to any man that takes the proper view of the position in which he is placed as a farmer in this country. There is nothing that gives me more comfort or tends more to make me go to bed at night satisfied than the thought that each and every one of the animals placed under my care have had just as much to eat as they would care for. I do not want them to be satisfied altogether with grain; that is not necessary and it would not be profitable; it would be very unprofitable from a great many standpoints; but I do want them to have a good amount of palatable feed so that they can lie down and chew their cud through the night and be satisfied until they are fed again in the morning.

Cornstalks, either dry or converted into ensilage, is another very important addition to the rougher foods for cattle. I have a silo and I have filled it every year since I had it until this year. This year I had not very many cattle, and I cut the corn when it was beginning to glaze, just about in the condition we would like to have it for the silo, and I had it shocked up very care-

fully. I tied the tops of the shocks into a small point, so that should it rain the corn would not get very wet, and I have a splendid supply of feed, and my cows, sheep and horses are glad to eat it. They thoroughly relish it and I believe it makes a splendid food for cattle, horses and sheep if properly mixed and fed to them, so that they will want to eat it up clean. I grind roots and mix them with cut corn and they stand mixed in that way for twelve hours. I take my corn inside. If you leave it outside you will have trouble. I know that some years it is difficult to get your corn dry enough to get it inside. It is most important to get your corn housed as soon as freezes come. It will pay you to go to some trouble to mix up your rough foods and see that they are palatable for your animals.

I believe if a man has some rough feed, such as straw that is not very good, or hay that is not very good, he ought to feed that in the early part of the season. Keep your sweet straw and hay to be fed in the latter part of the year. Cornstalks will not be relished by your cattle in the spring. Feed the refuse feeds that you have on your farms early in the winter, when the stock will eat almost anything. That good, brisk temperature that we are lucky enough to have in this country of ours will make these feeds good and they will nourish the animals well and make them thrive. In the spring of the year your animals are more dainty and want to have a little better and sweeter food.

As to feeding the cattle outside, I believe it is good for an animal to get the sunshine

and a change of temperature every day. An animal that is kept outside all the time will never have tuberculosis, and an animal that is kept inside all the time will in the majority of cases get tuberculosis if the ventilation is not of the most up-to-date kind. You do not want the animals to be too warm. I do not believe in these basement stalls that so many of us went to a great deal of trouble and expense to get a number of years ago. You do not find the people putting up that sort of a building now. I believe in having the best ventilation you can get, but do not keep your animals too warm. We have tried that time after time, thing objectionable in turning them out for a short time each day. I do not believe in tying cattle up. You can feed a lot together in a big run and they will get considerable exercise.

I put the corn in the barn in the fall of the year and I never have any trouble with mice. Well-cured corn is as valuable as any feed we have. If you put sulphur on your corn it will keep the mice away. Cornstalks make nice butter and good milk. I would not like to say it is better than ensilage. I really do not know. To all horses that are not getting a lot of work I would sooner give good straw than feed hay alone; it is more easily digested. I am speaking more of feeding in the winter season and I would not give much oats anyway. Give him about a half feed of oats twice a day and plenty of good straw. Frozen food is not good for an animal. If you have any smut in your corn that is one of the great causes for abortion.

I do not cut the hay for the horses unless we have hay that is not very good. If you are going to dampen the hay you should cut it and mix it with straw before you feed it to your horse. I do not think a man should feed extra hay to a horse unless he cuts it, dampens it and mixes it with straw. I like to feed turnips. I do not think there is anything much better for horses.

I like stock to walk outside and take a drink. I have scarcely ever gone into a stable where water was continually standing in front of the cattle but what that water was dirty, and I do not think it is a good thing; and then the animals do not get exercise. If it comes disagreeable weather we don't turn them out, but I think they should be turned out in the air and get cooled off twice a day, weather permitting. I do not believe in letting fat cattle run out too long, but I don't believe there is anything objectionable in turning them out for a short time each day. I do not believe in tying cattle up. You can feed a lot together in a big run and they will get considerable exercise.

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Caponizing Cockerels

WOULD like some advice on caponizing roosters. I often see items about it in your paper, and would like to know where I could get the set of instruments and how it is done. I see you answer questions in the poultry department of your magazine. I have been a reader of your paper for many years and like it very much.—A Subscriber.

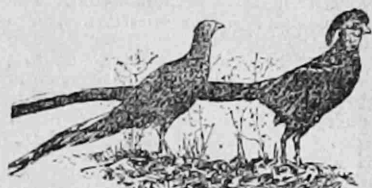
Caponing bears the same relation to poultry as steers do to cattle, barrows to hogs and wethers to sheep. Capons are very different from cockerels; they do not crow, are more slow of action and readily take on flesh. The comb and wattles cease to grow, which assists in detecting them on the market. Capons bring much more on the market than roosters. Caponizing is necessarily delicate, as are all surgical operations, and a beginner usually makes many mistakes and kills no small number of birds before becoming proficient. It does not pay to caponize small fowls, as size is desired in capons. Brahmas, Cochins, Plymouth Rocks, Langshans and other large and medium-large birds are recommended for the purpose. Yellow skin and legs are desirable features in birds crossed with Indian Games have much breast meat, a thing desired. Operate when cockerels are about 3 to 4 months old. Do not operate on any over 6 months of age. Hatch cockerels in early spring and caponize in June, July or August; fatten ten months and put on the market in March. The instruments can be purchased from any firm dealing in such supplies, and an advertisement can be found in any magazine devoted exclusively to poultry. The operation is simple. It consists in making a slit one and one-half inches between the last two ribs, just in front of the thigh. Of course the feathers are removed before the slit is made. The incision made, the intestines are exposed to view, the membrane is torn and the intestines are pushed aside. The testicles are then exposed to view, and are removed according to the directions given with the instruments purchased. Be careful not to cut the artery just back of the testicles. Remove the lower testicle first, in order that the blood will not interfere with the removal of the upper one. Remove all clots and foreign matter with absorbent cotton after the operation. If only one testicle is removed a "slit" results, which is little better than a cockerel. No roosters are provided capons after the operation until the wound is healed. Give sweet milk, water and soft feeds. Prick the skin near the wound if it puffs up after the operation. Corn given at the last stage of fattening adds much to the looks of the birds. The tail feathers, those on the neck and a few on the legs should be left on, so the capons may be distinguished on the market as such. Killing and dressing is done in much the same way as in ordinary poultry. As to the profits, it is a difficult matter to give any definite answer. It all depends on the market. The eastern markets—New York, Philadelphia and Boston—quote capons in shipping season (January, February and March) considerably higher than prices obtained for other poultry. Corn belt cities have not established a highly developed "taste" for capon flesh, and most of the producers send their produce east, although express charges cut down the profits. It may well be caponized cockerels when it is done with care. You may expect to do some wholesale killing before becoming an expert caponizer.—Editor Farm Page

Farming is always interesting to those who regard it as a manufacturing proposition.

BREEDING, FEEDING, DAIRYING, ETC.

Summer Tillage

SINCE summer tillage has a tendency to exhaust the humus of the soil and so reduce its plant food and water-holding capacity, it should be resorted to only in connection with a rotation that will overcome these tendencies. A rotation recommended for localities where the crops thrive well is "summer till and sow winter wheat; disk and fall plow the wheat stubble for corn the next year; disk the corn stubble for a spring grain—oats, wheat or barley; apply manure during the winter; disk in spring and plow for (sorghum) cane, which crop completes the rotation." Another means of restoring the humus content of the soil is by turning under green crops of rye and cow peas or other green-manuring crops. This method has given almost the same advantages as summer tillage, at the same time enriching the soil by the addition of humus, but in very dry years trouble may be encountered through lack of sufficient water to rot the large amount of vegetable matter turned under.



PHEASANT FARMING

The United States Department of Agriculture believes pheasants will thrive in certain sections of this country and is introducing them here from China and other native haunts of the bird. Oregon and Washington are well adapted by climate and other environments to their production, and pheasants in those states are more numerous than in the east and south.

Holland Cows' Paradise

THE feeding of cows in Holland is done by the farmer and the manufacture and sale of the product occupies the attention of the Hollanders to a degree difficult to understand unless one has paid them a visit. Holland is often called the cow's paradise, and it well deserves the name.

Caring for the cows, gathering food for them, and the manufacture and sale of the product occupies the attention of the Hollanders to a degree difficult to understand unless one has paid them a visit. Holland is often called the cow's paradise, and it well deserves the name.

Soy Beans Affect Butter

TO DETERMINE the effect of soy bean meal and soy bean oil upon the composition of milk and butter fat, and upon the consistency or body of butter, a series of experiments were designed to study the effect of different feeds upon the character and composition of dairy products.

Two lots of six cows each were fed three periods. One lot received throughout an average daily ration of bran, ground oats, cornmeal, gluten feed, cotton seed meal and mixed hay, the grain mixture amounting to seven and five-tenths pounds. The second lot was fed the same ration in the first period, which lasted fourteen days, but in the second period of twenty-eight days two and eight-tenths pounds of grain ration was replaced by two and three-tenths pounds of soy bean meal minus the oil, and in the third period, lasting twenty-one days, six-tenths of a pound of the normal grain ration was replaced by the same amount of soy bean oil. In the second period the second lot consumed about one-half pound more digestible protein than lot one, and in the third period six-tenths of a pound more fat. One cow lost in live weight owing to digestive disturbances in the second period, but the flow of milk appeared normal except in the case of one cow in lot two near the close of the third period.

The following conclusions were drawn:

Soy bean meal partially extracted (two and three-tenths pounds per day per head) seemed to be without influence in changing the proportions of the several milk constituents or in imparting any flavor to the milk.

Soy bean oil (six-tenths of a pound per day per head) was likewise without influence on the composition and flavor of the milk.

Soy bean meal did not modify the chemical character of the butter fat, neither did it have any effect upon the separation of the fat from the milk serum, the time of ripening of the cream nor on the thoroughness of the churning. Expert butter scorers could not detect any particular flavor in the butters made from the milk. The meal imparted a noticeable softness to the body of the butter, but not sufficiently so as to injure its commercial value excepting during the warm months. The softness of the body of the butter was due probably to the oil contained in the meal and not to the bean protein.

Soy bean oil depressed the volatile fatty acids (Reichert-Meissl number) and thus lowered the saponification number of the butter fat; it increased the percentage of un-

saturated acids (iodin number) and the total insoluble acids. The acid number and Valenta test were also increased. The oil did not noticeably change the melting point of the fat as measured by the Wiley test; it increased somewhat the refractive index.

The oil caused a marked softness of the butter; the latter also contained some 2 per cent more moisture than did the butter produced by the normal ration. No other changes were observed.

A STUDY was recently made on the effect of phosphorus on the chlorophyll or green coloring matter in plants. It was found that not only does the physiological action indicate a close relation between phosphorus and chlorophyll in the plant cell, but alcoholic and benzol extracts of green leaves show an inorganic phosphorus compound as well as colorless phosphatides, indicating that phosphorus plays a very important role in chlorophyll formation. The phosphorus in the plant was found to occur not only in combination with glycerin, but also in other forms, and it is believed to play as important a role in the physiological activity of the plant as magnesium or potassium. Action upon chlorophyll by the sun results in the making of food in plants.

American Farmer Backward

WE HAVE a class of American farmers who can see no merit in new ideas. If they would reflect they could see that the style of farming they and their fathers pursued has steadily reduced the productive power of their farms. But few farmers that we have known in Wisconsin for the past fifty years will produce as much grain per acre as they did in the beginning. Some of them, where butter dairying has been pursued and where large quantities of bran and other protein and phosphate foods have been purchased, are in as good, or better, condition to-day than they were originally. No man has a right to call himself a farmer in the true sense of the word whose farm runs down in productive power. When farms are let to tenants a part of the owner's share should be laid out each year in fertilizer to keep up the land. That sort of a first importance, and English farmers are guided by that idea. It should be the guide of the American farmer as well.

Doom awaits the prosperous corn-belt farmer unless something is done with the soils to prevent deterioration.

Wallow for the Hogs

PEOPLE often ask the question, "Why do the hogs like to get into the muddy water in the summer time?" There may be several reasons for it. I have seen boys who they were stripped for swimming roll in the soft mud and say that it felt good to them.

With the hogs the same is undoubtedly true. The mud feels good to them. If they are warm the water and mud cools and reduces the temperature of the body to the temperature of the water, which is also agreeable if the weather is warm. It will be noticed that the hogs do not roll in the water and mud except when the weather is uncomfortably warm.

The hog is one of the warmest of the warm-blooded animals. He does not enjoy heat, and cannot, if fat, endure much of it, and only then for a short period of time. The wallow is not only a means of cooling the body, but it is often absolutely essential for saving the lives of the hogs during very warm weather. It often occurs that the temperature of the atmosphere rises suddenly, all hands are busy at the work on the farm, and



GROWING TWO LITTERS A YEAR
It is profitable to grow two litters of pigs a year! Some raise 100 others, the larger majority, say yes. Two of the main requisites of producing big litters in twelve months are plenty warm milk and clean, comfortable quarters for the brood sow and her little ones.

no one thinks about the comfort of the hogs and if there is no place where they can cool themselves serious consequences are likely to follow.

Often the hogs die and there is a wound after a thunder shower has passed by as if what could have been the matter with the hogs. They were apparently strong and healthy, yet they died suddenly and were no noticed until after the storm had passed.

There are other reasons why there should be a wallow provided for the hogs. Parasites of different kinds infest the hogs. If the hogs have a wallow, especially if the mud is clayey, they can smother the little tormentors.

Another performance benefits them. When they have covered themselves with sticky mud, after it dries the surface of the body will itch and they will rub themselves against the corners of the buildings, fence posts, or anything that will answer their purpose. The rubbing does them good, and after a few times the surface will look cleaner and healthier, than before the mud baths were taken. Give them a good wallow. It will pay in several ways.

Mangels and sugar beets are fine for lambs being fattened for market.

GOOD BROOD SOW RATIOS

By Professor Herbert W. Mumford
Illinois College of Agriculture

It should be glad if you would suggest some ratios suitable for brood sows after farrowing, together with some discussion of the question of feeding for best results.

I could not do better than to quote from some suggestions on this point recently published by J. M. Eppard, formerly connected with the Missouri experiment station.

Constipation is an evil omen when the sow is the victim. It means that there is something wrong somewhere. The general remedy is laxative feed. In stringent cases castor oil or epsom salts must be resorted to for immediate effect, but in all cases prevention of the occurrence or the recurrence is secured by the feeding of laxative food and in making a provision for exercise. Among the most commonly used foods we have these, ranking in their loosening effect as follows: Flaxseed meal, alfalfa and clover pasture, bran, alfalfa meal, blue grass, soy bean meal, whole milk, skim milk, tankage, meat meal, shorts or middlings, barley, oats, rye and corn. The flax feeds lead the list, while corn is constipating in its effects, especially when fed exclusively. By properly supplementing maize, however, this binding feature may be eliminated. A constipated sow becomes sluggish and irritable. The wastes and poisons which should be eliminated freely by copious and frequent movement of the bowels are reabsorbed into the blood and in this manner the detrimental substances in the circulation, on reaching the uterus, have their ill effects upon the production of the young's food, the milk. Constipated food shows its ill effects on the litter as well as the dam, causing them to become weak and puny in time, if the trou-

ble is not remedied. If, during the pregnancy period, the brood sow is constantly constipated the youngsters when born are likely to be weaklings. Anything that tends to derange or upset the system of the dam has its bad effects on the little fellows. Tone and vigor in the dam mean vigorously toned pigs. Some good ratios for the suckling mother are:

Bran, middlings and cornmeal, equal parts.

Lined oilmeal one part, tankage one part, corn six-eighths part.

Lined oilmeal one, cornmeal four to six parts.

Middlings three, ground or crushed oats three, corn three and oilmeal one.

Middlings one, tankage one, oilmeal one, cornmeal eight-tenths.

Bran two, middlings three, corn four, oilmeal one.

Bran and rye (coarsely ground) equal parts and oilmeal one part.

Skim milk one to three, bran one to two, cornmeal one.

Skim milk three to four, middling one, bran one.

Skim milk three to four, middlings one, middlings three, barley (ground) three, cornmeal three, oilmeal one.

Barley (ground) three, rye (ground) three, corn three, oilmeal two.

Soy bean meal may be substituted in any of the above ratios for the oilmeal. The corn had best be fed as a meal during the entire period, but if it is not possible to have enough ground to last that long, ear corn

may be given after a few weeks. Dairymen find that they can secure more milk at less expense by feeding the corn as a meal rather than as shelled or in the ear. The grinding can be done conveniently, it would be advisable in the case of the sow, as well as the cow, because it is a matter of milk production in either case. The wear and tear on the bodily digestive apparatus is thus lessened also and more net energy derived. Soaking shelled corn, whole wheat and rye is advisable under some conditions. Thick slop is the favorite method of giving food. It is generally conceded that during the first few days little corn, if any, should be fed; however, if fed sparingly no harm is done.

In regard to pasture for the sow and pigs, alfalfa and clover are best; blue grass is good. In grazing ample exercise is provided and the grazers thrive under these healthful conditions. While in heavy milk or pasture the dam should be liberally fed her grain ration morning and evening. Some feeders turn on the pasture gradually, while others use no precaution in this regard. It is probably best to make haste slowly. Unlimited running around of the sow with pigs following is not in accordance with best results. It is better to limit the pasture area in some way. Any of the pastures alone are not sufficient. Grain should be fed by all means. The sow will lose considerable flesh, running down very thin in most cases, if the pasture alone plan is followed. Alfalfa, although the best of the pasture forages, is still not good enough to stand unaided in putting the sow through the suckling period. A

word of precaution concerning pasturing. The sow and pigs had best be allowed to remain in the farrowing pen and lot for at least a week before turning to the green, better two weeks. Previous to this, of course, allow the pigs their outdoor run on nice days any time after the first days. If the sow is on full feed of grain at this time, which is highly desirable, the transition from pen to pasture will not be so abrupt, and the change in food will not be marked, for the simple reason that the sow already on full feed will not overload on the grass. In case the pigs rub considerably from one litter mother to another, two weeks up in the pen before pasture will make the attachment of the pigs for their own mother strong, and thus avoid considerable stealing of milk. The first time the bunch, litter and dam, are turned out, do it after having given fairly heavy grain feed. The ration will, under this system, gradually adjust itself to the new environments. In the early morning, when the vegetation is damp with dew, sometimes very wet, the youngsters will be better off kept up. As soon as the sun dries things off then range may be allowed. Up until the time the youngsters are a couple of months of age they are susceptible to outside influences which are unfavorable, such as damp, wet days, sloppy grass, chills, etc. Too much dampness and chilling will cause scours and bring on rheumatism. Other stock, such as horses, cattle, etc., are very liable to kill the sucklers, if care is not taken to prevent them from lying together. Many a young pig, promising a rosy future, has lost its life by a cow lying down upon it. This means, then, that the sows should be placed with their pigs in a separate pasture to avoid accidental fatality.